

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN  
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)  
Chromepet, Chennai — 600 044.

B.Sc. END SEMESTER EXAMINATIONS APRIL-2022

SEMESTER - VI

13USTCT6013 & UST/CT/6013- Sampling Techniques

Total Duration : 3 Hrs.

Total Marks : 60

**Section A**

Answer any **SIX** questions ( $6 \times 5 = 30$  Marks)

1. Describe briefly sampling and non-sampling errors.
2. In SRSWOR, Show that the sample mean is an unbiased estimate of the population mean.
3. Derive the variance of sample mean under proportional allocation.
4. Discuss the procedure for selecting a sample using Systematic sampling.
5. Write short notes on Ratio estimator.
6. Explain the advantages of sampling over complete census.
7. What is simple random sample? Discuss the various methods of drawing a random sample.
8. Explain the advantages of stratified random sampling.

**Section B**

Answer any **THREE** questions ( $3 \times 10 = 30$  Marks)

9. Discuss the principle steps in sample survey.
10. Derive the expression for the variance of the sample mean in SRSWOR.
11. Obtain an estimate of the gain in precision due to stratification under proportional allocation relative to simple random sampling for estimating the population mean.
12. Derive the variance of sample mean in systematic sampling .
13. Compare Linear Regression estimate with the ration estimate and mean per unit.

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